Department of Pesticide Regulation

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July 19, 2017 ID# 281557

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RE: California Section 18 Emergency Crisis Exemption Request for: Transform WG to Control Lygus Bugs on Cotton

Dear Ms. Maignan:

This is to advise you that the California Department of Pesticide Regulation (DPR) requests to implement the crisis exemption provisions of 40 CFR, Part 166 which would authorize the use of Transform WG (sulfoxaflor, EPA Reg. No. 62719-625) to control Lygus bugs (Western Tarnished Plant Bug) in cotton in Fresno, Glen, Imperial, Kern, Kings, Madera, Merced, Riverside, Sutter, Tehama, and Tulare Counties. A section 18 specific emergency exemption request for this use pattern will be submitted within the 15 day time frame following this crisis request as required by 40 CFR. This is the first year that the California Department of Pesticide Regulation has made this request.

This crisis exemption request is necessary to avert significant losses by the California cotton industry due to an unprecedented infestation of Lygus bugs. Current Lygus counts are massive compared to typical years. According to the California Cotton Ginners and Growers Association, 90% of cotton acreage in the impacted counties, or roughly 270,000 acres of cotton, will need to be treated to control Lygus bugs. In normal years, some Lygus always appears in cotton fields in June. However, the populations are relatively low in density and do not continually re-infest. Under typical conditions, 1-4 Lygus/50 sweeps (measured using a standard sweep net over 50 paces or sweeps) is the threshold for the grower to take action to control the Lygus population. Under current conditions, growers are seeing 20-50 lygus/50 sweeps, well beyond the treatment threshold. Due to the immense, continued pest pressure, currently registered pesticides are not able to provide adequate control. The timing of the infestation and the growth stage of the cotton is now critical and will result in 20% or more yield losses in affected areas.

Lygus hesperus (Western Tarnished Plant Bug) or Lygus bug is a key pest infesting the cotton production system in California. Lygus bugs can threaten a cotton crop from earliest fruit set through flowering and final boll set. Lygus bugs damage the cotton by inserting their mouthparts into important developing plant tissues. For instance, when feeding on squares (flower buds), the Lygus target the developing anthers and other essential plant tissue. The damage done depends on the size of the square. When squares are small,

they shrivel, turn brown, and drop from the plant. For larger squares, they remain on the plant but flowers tend to develop with blackened, shriveled anthers incapable of producing pollen, possibly interfering with fertilization. Currently, growers have reported and observed square retention of 50% and in some cases, even lower. In previous years when Lygus population densities reached critically high levels, cotton production was reduced in ranges from 17% to 37%. Failure to adequately protect cotton during early square formation results in an even greater need to protect remaining cotton through the rest of the season.

Furthermore, Lygus bugs will feed on the bolls, targeting the developing seeds. If the Lygus penetrates the carpal wall of the boll, economic damage will occur. If the feeding is extensive, the boll falls off the plant. If the damaged bolls remain, the boll will have undeveloped seeds resulting in reduced lint production. The damage done to the developing bolls further increases the loss in yield and profit of the crop.

The emergency exists because natural conditions created overwhelming Lygus infestations, requiring repeated applications of broad spectrum insecticides. The cotton industry is experiencing continued, intense pressure from Lygus bugs due to the recent wet, extended winter. Due to heavy winter rains and the extended period of rainfall, the weed population in areas surrounding cotton fields (right of ways, highways, and natural areas) was able to thrive. Consequently, the weed population remained a viable host for Lygus for a prolonged period during March to May. Furthermore, due to the recent drought in California, several large fields were left uncultivated allowing for a dense population of weeds to develop, which further increased the Lygus population. The increased weed population allowed the Lygus population to surge, and as the weeds began to die back, a massive population of Lygus bugs moved into surrounding cotton fields.

The Lygus infestation being experienced in geographically differing areas is a result of the entire state experiencing increased precipitation and an extended winter this year. This increased precipitation resulted in increased weedy areas in the surrounding foothills along with increased growth in unmanaged areas as noted above. Where weed management is possible and within the grower's control, action is being taken. However, the overall weed growth throughout the entire state creates an environment in which the weed management needed is not feasible or cost effective. Furthermore, the time and effort required to maintain the extensive weed growth would not be completed in time to address the present issue.

Weed management when possible is utilized as a way to help mitigate Lygus pest pressures. However, more often than not, the weed management needed to help suppress Lygus populations is out of the hands of the grower experiencing the pest pressures. Areas surrounding cotton fields including right of ways, highways, or "natural areas" are overseen by respective county, state or federal agencies, not the growers. It is simply not economically justifiable for county agencies to spend the manpower and fuel to manage areas on a case-by-case instance relative to cotton producing areas.

In addition, fallowed fields that have become overgrown or weedy are often not managed by the same grower who is experiencing the Lygus pest pressure in cotton. Some growers encountering this issue have taken steps against neighboring operations with a weed management problem seeking action to mitigate

the problem. However, with the extent of land and weeds present, the management required would take too long and extend past the cotton growing season. These growers who have fallowed fields are already taking an economic hit by having that land out of production. Once again, it is not economically sound to spend the time, fuel, and labor plowing a field with no foreseeable revenue.

Currently, several growers are already on their 4th application of pesticide for treating Lygus and are still receiving upwards of 30 counts (4 times over the action threshold). Multiple applications of tank mixes to control these high population densities are setting the stage for other pest outbreaks including spider mites, aphids and whiteflies. Furthermore, the repeated use of several active ingredients does not support accepted insecticide resistance management principles.

The California Cotton Ginners and Growers Association explained the infestation is so bad for one grower that he was advised to disk the field. Due to the intensity of the infestation, the cotton plants will not recover from the damage done by the Lygus bugs. As a result, the grower will not be able to produce enough income to make up for the cost of continued applications of pesticides.

While registered materials do work under low to moderate pressure, the huge population densities being experienced in 2017 are exceptional. Populations have overwhelmed alternatives. Many products such as Steward (indoxacarb), Diamond (novaluron), and Belay (clothianidin) suppress populations (60% control), which is acceptable at low populations (5-10/50 sweeps). However, after treatment with the available alternative pesticides, Lygus population densities are still well above economic threshold (20-30 per 50 sweeps).

California is unique in its production of specialty crops which border cotton, and these specialty crops require substantially more farm laborers. The use of some of the products has generated public concern for the safety of these workers and the environment; as a result, cotton producers would prefer to use reduced risk products such as Belay and Carbine. However, Belay (clothianidin) is not available for use after cotton blooms (early July). While Carbine (flonicamid) is an excellent choice for efficacy and selectivity, reliance on a single active ingredient puts undue selection pressure on the Lygus population. Additionally, utilizing Carbine is met with the restriction of a limitation to three applications per season and some growers have already gone through their second application.

The use of pyrethroids and organophosphates increase the risk to the environment and human exposure. Heavy use of chlorpyrifos and dimethoate can cause water quality exceedances, and pyrethroids can cause sediment contamination.

On top of having increased risks for the environment and public health, pyrethroids are losing their effectiveness on Lygus bugs due to resistance development. Research done by the late Dr. Larry Godfrey, University of California, Davis Entomologist, has shown that multiple applications increase resistance in subsequent Lygus populations.

Growers recently lost the use of Vydate (oxamyl) due to a disruption in supply chain. Vydate was a key product for managing resident nymph populations versus migratory adults. This is critical because nymphs are more voracious feeders and tend to cause the most severe damage.

The repeated use of broad spectrum insecticides (organophosphates, pyrethroids, and neonicotinoids) has affected the IPM system through the reduction of natural enemies including bigeyed bugs, minute pirate bugs, parasitic wasps, and other general predators. Conservation of natural enemies is the basis for biological control in cotton. When multiple broad spectrum insecticides are required to manage a large influx of Lygus bugs, the inventory of natural enemies, the "biological residue", is removed. As a result, the population of Lygus and other pests (aphid, mites, and whiteflies) continue to grow.

Transform WG is federally registered for use on a variety of crops including canola (rapeseed) (subgroup 20A), potatoes, and wheat to control various pests such as aphids, plant bugs, and leafhoppers.

Applications made in accordance with the terms of the emergency exemption issued under section 18 of FIFRA are not expected to result in residues of sulfoxaflor, including its metabolites and degradates, in or on cotton commodities in excess of the following USEPA previously established tolerances listed in the 40 CFR at 180.668:

Cotton, gin by products:	6.00 ppm
Cotton, hulls:	0.35 ppm
Cottonseed:	0.20 ppm

The Section 18 Use Instructions (Label) and the Registrant Letter of Support are attached for your review. Thank you for your attention to this serious problem.

If you should have any further questions, please do not hesitate to contact Francie Bishop at 916-324-4251 or <francie.bishop@cdpr.ca.gov>.

Sincerely,

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Enclosures

cc: Ms. Ann Prichard, Registration Branch Chief, DPR
Ms. Francie Bishop, Senior Environmental Scientist (Specialist), DPR